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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,339	04/14/2005	Hisanori Tsuboi	112857-444	8167

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BELL, BOYD & LLOYD, LLP  
P. O. BOX 1135  
CHICAGO, IL 60690

EXAMINER
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VERDERAME, ANNA L

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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10/31/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/531,339

Applicant(s)

TSUBOI ET AL.

Examiner

Anna L. Verderame

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/18/2007, 06/20/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tonoï et al. JP-2001-001645 in view of Azuma 2003/0166467 and Nagai et al. WO 02/096663(US 2004/0171485 used as an English language translation) and further in view of Tsutsui 5,547,500.

Tonoï et al. teaches a new reversible multiple color recording medium by which a more accurate, finer and clearer multiple color image can be expressed wherein a rewriting can be freely performed by deleting the image. As shown in figure 1, the recording medium contains a support 5, three heat-reversible recording layers 1-3 and two thermal break layers 4 formed between the first and second recording layers and between the second and third recording layers. The recording layers consist of a laminate of an absorption layer (1b,2b,3b) and a heat-reversible color coloring layer (1a,2a,3a). Materials for the substrate are disclosed at (0011). Use of cyanine and phthalocyanine as the light-to-heat absorbing materials is taught at (0026). The heat insulating function of the thermal break layers is discussed in the abstract. Two embodiments are discussed in which a red and then a blue and finally a green thermal-

reversible recording layers are formed on a substrate(0040 and 0033). This ordering meets the limitation that the recording layer formed closes to the substrate absorb at the longest wavelength and that the wavelength at which subsequently formed layers absorb be shorter than this wavelength.

The examiner notes that the reference teaches that each of the recording layers consists of a laminate structure having a light-to-heat transforming material formed in contact with the dye recording layer rather than having a recording layer in which these two materials are evenly distributed. However, it is further noted that the claims, as written, do not exclude laminate embodiments.

In addition to not teaching a reversible thermosensitive recording layer comprising a mixture of a heat-sensitive dye and a light-to-heat absorbing material, the reference also does not teach the recording method of claims 13-14.

Nagai et al. teaches a thermally sensitive recording layer containing at least a photo-absorbing material which absorbs laser ray and converts it to heat, an electron donating leuco dye, and an electron accepting color-developing agent. The leuco dye preferably absorbs at 660 nm or longer(abstract). Cyanines and phthalocyanines are mentioned as photo-absorption materials[(WO page 5)/(0015)]. Leuco dyes are discussed beginning at [(WO page 6)/(0017)]. Binders used in the recording layer are discussed at [(WO page 6)/(0017)]. Substrates are discussed at [(WO page 15)/(0044)]. Developing agents are discussed at [(WO page 9)/(0031)]. The recording layer according to this invention has excellent sensitivity(0012).

In example one Azuma teaches a recording layer containing a light-to heat converting dye, a leuco dye, a reversible developer, and a resin(0078-0082). Developers taught at (0053). Disclosure that the light-to-heat converting dye can be incorporated into a layer different from, but in contact with, the layer containing the leuco dye is found at (0058). Alternatively, both can be provided in the same layer (0058).

These references are relied upon for their teachings of thermally reversible recording layers like those of the instant application, and for their disclosure of both laminate and mixed thermally reversible recording layers.

Tsutsui teaches a method for recording in a reversible thermal coloring recording media. The medium can be recorded by recording a negative or a positive image. A negative image is formed when a colored recording layer is selectively decolored to form an image. A positive image is formed when a colorless recording layer is selectively colored to form an image. This process is disclosed at (10/46-11/17). The colored or decolored recording layer is formed by heating.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the thermally reversible multicolor medium taught by Tono et al. by alternatively replacing the laminate recording layer with mixed layers like those taught by Azuma and Nagai et al. containing a light-to-heat converting dye, a leuco dye, a developing agent, and a binder, based on the direction to form mixed recording layers by Nagai et al. and based on the disclosure to form mixed layers as an alternative to laminate recording layers by Azuma et al. and with the reasonable expectation of

forming a medium having excellent recording sensitivity as disclosed by Nagai et al. Further, it would have been obvious to record the media by uniformly heating the recording layers to obtain layers either ring the colored or decolored state, and further to selectively record the layers by forming a colored patter in the decolored recording layer(positive image) and forming a decolored pattern(negative image) in the colored recording layers based on the disclosure of Tsutsui.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 8-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,995,116 in view of Tonoï et al. JP-2001-001645.

The claims of patent No. 6,995,116 recite all the limitations of the instant claims

except for the limitation that the recording layer formed closest to the substrate absorb at the longest wavelength and that the wavelength at which subsequently formed layers absorb be shorter than this wavelength. Further, the claims of patent No. 6,995,116 do not recite the limitation that at least one of said light-to-heat transforming materials is cyanines or phthalocyanines.

Tonoi et al. teaches the use of phthalocyanines and cyanines at (0027). In an example Tonoi forms a reversible thermosensitive recording medium in which three recording layers are formed on a substrate and insulating thermal breaks were deposited between the three recording layers. The colors of the recording layers deposited on the substrate were sequentially, red, blue, and then green(0040 and 0033).

5. Claims 8 and 10-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim23-24 and 28-29 of copending Application No. 10/565,918. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application recite all the limitations found in the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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-4,940,689

-2003/0114304

-4,864,024

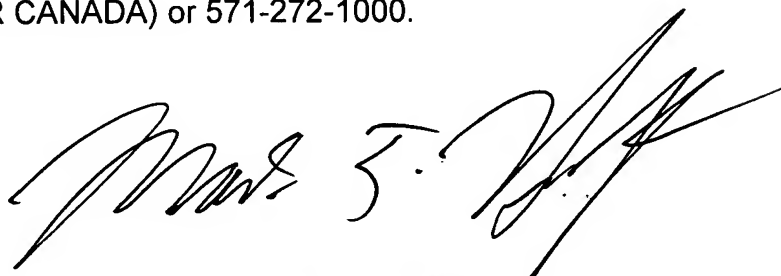
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna L. Verderame whose telephone number is (571)272-6420. The examiner can normally be reached on M-F 8A-4:30P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (571)272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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